

## Antibiogram and Molecular Characterization of Methicillin-Resistant *Staphylococcus Pseudintermedius* from Shelter Dogs with Skin Infections and Dog Owners in Abakaliki, Nigeria

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**Abstract :** The continued increase in methicillin-resistant *Staphylococcus pseudintermedius* (MRSP) among dogs and the zoonotic transmission event of MRSP from dogs to humans threaten veterinary medicine and public health. The cardinal objective of this study was to determine the antibiogram and frequency of toxin genes in MRSP obtained from shelter dogs with skin infections and dog owners in Abakaliki, Eastern Nigeria. Skin swabs from 61 shelter dogs with skin infections and 33 nasal swabs from dog owners were processed and analyzed using standard microbiological techniques. Susceptibility to antibiotics was determined by Kirby Bauer disc diffusion technique. The screening for Seccanine, lukD, siet, and exi1 genes was carried out by PCR. A total of 23 (37.7 %) and 1 (3 %) MRSP strains were obtained from shelter dogs and dog owners, respectively. Generally, isolates exhibited high resistance to amoxicillin-clavulanic acid, ceftazidime, and cefepime (100 % - 66.7 %) but were very susceptible (100 % - 70.7 %) to chloramphenicol and doripenem. The only isolate from dog owners harboured seccanine, lukD, and siet toxin genes while isolates from shelter dogs harboured seccanine16 (69.6 %), lukD 17 (73.9 %), siet 20 (87 %), and exi1 (4.4 %) toxin genes. Isolates were generally observed to be more resistant than other reports from the literature. Interestingly, there was a similarity in the resistance antibiotypes and frequency of toxin genes harboured by MRSP isolates between shelter dogs with skin infections and their owner in a sampled household, thus suggesting a likely zoonotic transmission event. This report of the occurrence of MRSP and high frequency of toxin genes (Seccanine, lukD, and siet) in shelter dogs and dog owners represent a major challenge, especially in terms of antibiotic therapy, and is a serious concern for both animal and public health.

**Keywords :** methicillin-resistant *S. pseudintermedius*, zoonotic transmission, antibiotic resistance, companion dogs, toxin genes

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